

Claim Amendments

1. (currently amended) An apparatus for mixing fluids, said apparatus comprising:
 - (a) a housing having an interior comprising an interior channel with capillary dimensions, said interior channel comprising a plurality of biopolymer features arranged in a predetermined manner on an ~~the~~ interior surface thereof,
 - (b) an opening at a proximal end of said interior channel,
 - (c) a chamber at a distal end of said interior channel,
 - (d) a structural member in said interior channel adjacent said distal an end thereof, ~~said structural member comprising multiple elements separate from said interior channel,~~ the dimensions of and placement of said structural member being sufficient such that intermittent application of centrifugal force to said interior channel causes movement of said fluid between ~~in~~ said interior channel and said chamber, and
 - (~~ee~~) a mechanism that intermittently generates centrifugal force on the interior of said housing to cause movement of said fluid in said channel.
2. (previously presented) An apparatus according to Claim 1 wherein said mechanism of (c) comprises a rotatable member.
3. (canceled)
4. (original) An apparatus according to Claim 1 wherein said interior channel comprises a linear array of features for conducting chemical reactions.
5. (original) An apparatus according to Claim 4 wherein said features comprise biopolymers.
6. (original) An apparatus according to Claim 4 wherein said linear array is a linear microarray.
7. (currently amended) An apparatus for conducting hybridization reactions, said apparatus comprising:

(a) a housing having an interior comprising an interior channel with capillary dimensions, said interior channel comprising a linear microarray of biopolymers for conducting hybridization

reactions ~~and a mixing area,~~

(b) an opening at a proximal end of said interior channel,

(c) a chamber at a distal end of said interior channel,

(d) a structural member in said interior channel adjacent said distal an end thereof, said structural member comprising multiple elements separate from said interior channel, the dimensions of and placement of said structural member being sufficient such that intermittent application of centrifugal force to said interior channel causes movement of said fluid in said interior channel between said linear microarray and said chamber mixing area, and

(ee) a mechanism that intermittently generates centrifugal force on the interior of said housing to cause movement of said fluid in said interior channel between said linear microarray and said chamber mixing area.

8. (original) An apparatus according to Claim 7 further comprising a fluid dispensing device.

9. (original) An apparatus according to Claim 7 wherein said biopolymers are polynucleotides or polypeptides.

10. (original) An apparatus according to Claim 7 wherein said mechanism comprises a rotatable support for rotating said housing to produce said centrifugal force.

11. (original) An apparatus according to Claim 10 wherein said rotatable support is a circular tray driven by a motor.

12. (currently amended) A method for mixing a fluid, said method comprising:

(a) introducing a fluid into a housing of an apparatus according to Claim 1, and

(b) generating intermittent centrifugal force to cause repetitive movement of said fluid between said interior channel and said chamber sufficient to cause mixing of said fluid by agitation ~~but insufficient to cause said fluid to exit said housing.~~

13. (original) A method according to Claim 12 wherein said intermittent centrifugal force is generated by rotating said mechanism.

14. (currently amended) A method for conducting chemical reactions, said method comprising:

(a) introducing a sample into a housing of an apparatus according to Claim 4, and

(b) incubating said sample in said housing under conditions for carrying out said chemical reactions and during said incubation generating intermittent centrifugal force to cause repetitive movement of said fluid between said linear array and said chamber sufficient to cause mixing of said fluid by agitation ~~mixing area but insufficient to cause said fluid to exit said interior channel.~~

15. (original) A method according to Claim 14 wherein said intermittent centrifugal force is generated by rotating said housing.

16. (currently amended) A method for conducting hybridization reactions, said method comprising:

(a) introducing a sample into an opening at a proximal end of a housing comprising a linear microarray of features for hybridizing to analytes in said sample, said housing having an interior with internal capillary dimensions, a mixing area separate from said linear array at a distal end of said housing and a structural member in said housing adjacent ~~an~~ said distal end thereof, ~~said structural member comprising multiple elements separate from said housing~~, the dimensions of and placement of said structural member being sufficient such that intermittent application of centrifugal force to said housing causes motion of said fluid therein, and

(b) incubating said sample in said housing under conditions for carrying out said hybridization reactions and during said incubation generating intermittent centrifugal force to cause reciprocal movement of said fluid between said linear array and said mixing area such that said fluid is mixed by agitation.

17. (original) A method according to Claim 16 wherein said intermittent centrifugal force is generated by rotating said housing.

18. (original) A method according to Claim 16 further comprising, subsequent to said incubation, increasing said centrifugal force sufficient to cause said fluid to exit said interior.

19. (original) A method according to Claim 18 further comprising introducing a wash fluid into said housing and generating intermittent centrifugal force sufficient to cause agitation of said wash fluid but insufficient to cause said wash fluid to exit said housing

20. (original) A method according to Claim 19 further comprising increasing said centrifugal force sufficient to cause said fluid to exit said interior.

21. (original) A method according to Claim 16 further comprising examining said linear array for the results of said hybridization reactions.

22. (original) A method according to Claim 16 wherein said housing is part of a microfluidic system.

23. (original) A method according to Claim 16 wherein said housing is a channel in a microfluidic system.

24. (original) A method according to Claim 16 wherein said features are biopolymers.

25. (original) A method according to Claim 16 wherein said features are polynucleotides or polypeptides.

26. (previously presented) A method according to Claim 16 wherein said linear microarray comprises more than one thousand features.

27. (original) A method according to Claim 21 comprising forwarding data representing a result obtained from said examining.

28. (original) A method according to Claim 27 wherein the data is transmitted to a remote location.

29. (original) A method according to claim 21 comprising receiving data representing a result of an interrogation obtained by said examining.